

Applicant: Sammie J . Glorioso
Application No.: 10/632,391

REMARKS

As an initial matter, it is noted that the Office Action incorrectly states that claims 1-22 are pending in this application. Claims 1-27 were pending at the time the Office Action issued. Similarly, the Office Action also states that claims 16-22 have been withdrawn from consideration based on Applicant's October 24, 2006 election of the claims of Group I (claims 1-15). The Action should have stated that claims 16-27 are withdrawn from consideration.

By way of this Reply, claim 1 has been amended, without prejudice, and claims 28-34 have been added. Withdrawn claims 16-27 have been cancelled, without prejudice, as being drawn to a non-elected invention as grouped by the Examiner. Dependent claim 13 has been cancelled, and its subject matter has been re-written into dependent claim 33. Applicant submits that no new matter has been introduced into this application by these amendments.

Restriction Requirement

On October 19, 2006, the Examiner contacted Applicant's undersigned representative stating that the claims of this application have been restricted as follows:

Group I: claims 1-15 directed to a process for manufacturing composite structural insulated panels; and

Group II: claims 16-27, directed to an apparatus for manufacturing structural insulated panels

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In response to this Restriction Requirement, Applicants elected the claims of Group I (claims 1-15) for prosecution on the merits.

Claim Rejections

Claims 1-4, 6-9, and 13-15 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Larson (U.S. Patent No. 4,602,466). Claims 5 and 10-12 have been rejected under 35 U.S.C. § 103(a) as being obvious over Larson.

Larson discloses a process for manufacturing structural foam building panels comprising the following steps: (1) placing a lower board on a conveyor; (2) placing spacer bars (stiffener bars) on the first board; (3) laying foam on the first board; (4) placing an upper board on the spacer bars above the lower board; and (5) heating and curing the foam (see Figs. 1-6 of Larson). The foam is deposited on the lower boards using a plurality of dispensing nozzles. See col. 4, lines 4-9 and Fig. 2.

Figure 7 of Larson discloses an alternate embodiment in which the stiffener bars are not used. Instead, guide rails are used in coordination with a first board to form a trough in which the foam is deposited. See col. 7, lines 25-37. The foam is cured and adhered to a membrane, such as a foil. See col. 7, lines 38-40. After formation of a sufficient amount of cured first boards, a second board is placed on the conveyor, spacer bars are used as in the first embodiment. The foam is deposited on the second boards, and the cured first boards are placed above the second board with the foil membrane facing downwardly. See col. 7, lines 45-60.

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The foam material then expands upwardly and grips the foil membrane. See col. 7, lines 60-63.

Figures 10 and 11 similarly disclose an alternate embodiment wherein the stiffener bars are not used. Instead a rectangular grid (128) is used to space the upper board apart from the lower board. See col. 7, line 66 – col. 8, line 21.

Applicant respectfully traverses this rejection and submits that Larson is distinguishable from the present invention for the reasons set forth below.

a. Independent Claim 1

Independent claim 1 of the present invention, as amended, is distinguishable from Larson because Larson fails to teach or suggest using a multi-barrel extruder to apply the catalyzed foam mixture on the lower boards. The present application expressly teaches that it is preferred to use a multi-barrel extruder to deposit the foam materials onto the foam boards. By using a multi-barrel extruder, Applicants have discovered that the foam materials can be mixed in a more controlled manner, and deposited onto the lower boards at a much higher rate.

While Larson discloses that “a plurality of nozzles” are used to deposit the foaming materials onto the boards in the conveyor systems (see col. 4, lines 4-9 and Fig. 2), there is no teaching or suggestion in Larson to use a multi-barrel extruder to mix and deposit the foam materials as recited in independent claim 1 of the present invention.

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Withdrawal of the anticipation rejection of claim 1 of the present invention is respectfully requested.

b. New Dependent Claim 28

New dependent claim 28 of the present invention is further distinguishable from Larson because Larson fails to teach or suggest a single dispensing head for depositing the catalyzed foaming mixture on the lower boards. Applicants have discovered that use of a single dispensing head permits a uniform amount of foam to be deposited on the respective lower boards to create a uniform bond between the foam and boards.

As set forth above, Larson expressly discloses that “a plurality of dispensing nozzles” are used to distribute the foam material on the boards. See col. 4, lines 4-9 and Fig. 2. By using a plurality of dispensing nozzles, the apparatus disclosed in Larson is prone to creating voids between the streams of foam deposited on the boards, which makes the resulting panel more susceptible to delamination between the foam and boards as compared to the present invention.

c. New Dependent Claims 29-31

Dependent claim 29-31 are distinguishable from Larson, because Larson fails to teach or suggest a multi-barrel extruder system having an associated reservoir for introducing the foam ingredients into the extruder barrels (claim 29); that the foam mixture consists of isocyanate, polyol, foaming agent, and catalyst (claim 30);

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or that the catalyst is provided from an associated reservoir to a dispensing head (claim 31).

Applicants have discovered that the foam materials can be introduced to the extruder system and mixed in a more controlled manner by using a plurality of reservoirs to introduce the foam ingredients into an associated mixing barrel of the extruder system. Furthermore, introducing the catalyst at the dispensing head separately from the other foam ingredients ensures that expansion of the foam is not initiated until the point at which the foam exits the extruder.

Applicants respectfully submit that none of the features recited in dependent claims 29-31 are taught or suggested in Larson.

d. New Claims 32-34

Independent claim 32 recites in pertinent part, that “the conveying system comprising a support to keep the upper boards at a desired height and placement above the respective lower boards.” This is distinguishable from Larson, because Larson uses stiffener bars (Figures 1-7, and 9) or a rectangular grid (Figures 10 and 11) to keep the upper board at predefined distance above the lower board. The resulting product incorporates these stiffener bars or rectangular grid. Stiffener bars or a grid are not used in the presently claimed invention to keep the upper board at a predefined distance above the lower board, as expressly taught in Larson. Instead, the conveying system includes a support, such as guide rails(39, 40) to support the upper boards. Because the support is a part of the conveying

system, the resulting structural insulated panels do not include the support, as in the end product of Larson.

To the extent that Larson discloses the use of guide rails (see Figs. 3-5 and 7), these guide rails are only used to limit the outward movement of the stiffener bars (see Larson at col. 3, line 64 – col. 4, line 3), and are not used to keep the upper board at a defined distance above the lower board. In addition, to the extent that embodiment shown in Fig. 7 of Larson does not require stiffener bars, it is distinguishable from the present invention because as discussed above, the guide rails are used to form a trough to deposit the foam material on the first board. A foil membrane is then placed over the first board in place of a second board. The first board is then cured and placed above a second board, which again uses stiffener bars to support the first board at a desired height above the second board.

Thus, Larson does not teach or suggest a conveying system using a support to keep the upper boards at a desired height and placement above the respective lower boards.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

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In view of the foregoing remarks, Applicant respectfully submits that the pending claims of the present application are in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

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